

# Math 335: Abstract Algebra I

## Fall 2017

### General Course Information

**Professor:** Noah Aydin   **Office:** RBH 319   **Phone:** 5674   **E-mail:** aydinn@kenyon.edu

**Course web page:** <http://www2.kenyon.edu/depts/math/aydin/teach/335>

**Office Hours:** M,W: 1-2; T: 9-11; R: 10-11 or by appointment. See my weekly schedule on course web page.

**Class Meetings:** MWF 10:10-11 in RBH 203

**Textbook:** A first course in Abstract Algebra, J. B. Fraleigh, 7th ed, Addison Wesley. ISBN 0-201-76390-7

**Course Content:** Abstract Algebra is the study of algebraic structures. The abstraction refers to the perspective taken in the subject, which is very different from that of high school algebra courses. Rather than looking for the solutions to a particular problem, we will be interested in such questions as: When does a solution exist? If a solution does exist, is it unique? What general properties does a solution possess? What general properties are common between different algebraic structures? Our exploration will go beyond such algebraic structures as the integers and the rationals, and our approach will be axiomatic. Indeed, working from a fairly small set of axioms one can describe the properties of a wide range of algebraic structures concisely and elegantly. Focusing on group theory, our study will be motivated by the desire to describe algebraic structures in a rigorous, concise, and elegant way. As an added bonus, group theory will also allow us to quantify the various types of symmetries so prevalent in the world around us. We will cover most of the topics in Chapters 1-3 and some of Chapter 7 in the textbook.

#### Grading and Evaluation Criteria:

Final grades will be determined based on the performance in the following components.

Component	Percentage
Homework	20
Presentation/Participation/Attendance	25
Midterm Exams	30
Final Exam	25

**Class Format and Daily Reading:** *Actively reading* the textbook before each lesson is a necessity. Come to class prepared to present the material, ask questions and participate in discussions. The class will mostly be presentations and discussions. There will not be enough time to cover all aspects of each topic during class. You will still be held responsible for the material. To make sure that you do the readings before class, there will be short, *random pop quizzes*. Your performance on these quizzes will be part of the participation grade. Much of the learning in this course will take place outside the classroom. I am here to help. Make sure you utilize my office hours or make appointments to get help that you may need in a timely fashion.

**Presentations:** Every week a number of problems will be assigned to be presented in class (usually on Fridays). You need to work on these problems in groups of size 2 or 3. I will pick a problem from the assigned sets of problems and ask for volunteers. A significant part of your participation grade will be based on your performance on these presentations throughout the semester. Here are the rules and expectations on presentation problems.

- You work in groups but present your solutions individually.
- You must have a written solution at hand when you volunteer to present a solution.
- You must talk and explain the solution to your classmates, not just your professor.
- The audience must examine the solutions carefully, and ask clarifying questions.
- Asking questions to the presenter is part of participation.
- Friendly and constructive criticism is expected and appreciated from the audience.
- If a presenter gets stuck or another student offers a significantly different way of solving the problem, alternative solutions may be presented by another student.

**Written Homework:** In addition to presentation problems, you will have weekly written homework (usually due on Mondays). You must work on these homework problems alone. Any help you get from others on written homework must follow mathematics department's guidelines posted on course web page.

**Attendance and Late Policy:** Regular attendance is an essential part of this course and is expected. No make-up exams will be given without justified and documented excuses. *No work will be accepted late.* Attendance is part of your participation grade and each unexcused absence will negatively affect your participation grade.

**Exams:** All exams will have a take home part and an in-class part.

The dates of the midterm exams are indicated on course calendar page (Oct 2 and November 13).

The final exam will be on Thursday, December 14 at 6:30 pm, and it will be 3 hours long.

**Academic Honesty:** The rules set forth in the 2017-2018 Course Catalog apply to all aspects of this course.

<http://www.kenyon.edu/directories/offices-services/registrar/course-catalog-2/administrative-matters/academic-integrity-and-questions-of-plagiarism/>

In general, any work submitted for credit must result directly from your own understanding, thoughts, and ideas. Presenting the work of others as your own is strictly prohibited. You must follow the guidelines given in this document for presentation problems and mathematics department's guidelines for written homework and take-home exams. If you have any questions or uncertainty, please ask your professor for clarification.

**Disabilities:** If you have a disability which requires an accommodations in this class, please feel free to discuss your concern with me, but you should also consult Ms. Erin Salva, the coordinator of student access and support services ([salvae@kenyon.edu](mailto:salvae@kenyon.edu), x5453). It is Ms. Salva who has the authority and expertise to decide on the accommodations that are proper for your disability. Though I am happy to help you in any way I can, I cannot grant any accommodations without a notification from Ms. Salva.

### **Title IX**

Kenyon College seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment/misconduct/assault, we encourage you to report this. If you report this to a faculty member, she or he is obligated to notify our college's Title IX coordinator about the basic facts of the incident (you may choose whether you or anyone involved is identified by name). The Title IX coordinator will assist you in connecting with all possible resources both on and off campus. Kenyon College's Title IX and VAWA Policy is available at <http://www.kenyon.edu/directories/offices-services/title-ix/policy/>

### **How to Study for this Class**

- Read the textbook before the class. You may not understand everything in the first reading but that's OK. Do your best. Take notes to ask questions in class.
- Come to the class, and actively participate in class discussions and activities. Do not hesitate to ask questions.
- Work on presentation and homework problems as soon as possible. Do not wait until the last minute.
- Establish regular study hours with your partner(s). Studying regularly is key to success.
- If you are stuck go to the office hours to get help.